

try and ship-building; the wood is flexible and tough, it grows quicker, and is not so durable as the English oak; it derives its name from the appearance of the bark. The *Mountain Red Oak* is light and soft in the wood, and not very durable; it grows rapidly, and not uncommonly attains a height of a hundred feet; it has its name from the circumstance of the leaves changing their colour before the fall. The *Blunt-lobed Iron Oak* frequently grows to the height of seventy feet, and is a valuable timber; it is hard, and not being subject to decay, has generally the preference for fencing and works of a similar nature. The *Live Oak* reaches a height of fifty feet, and is a wide-spreading tree; it furnishes very durable wood, and is in high estimation as a ship-timber. The *Chestnut-leaved Oak* is a tall and handsome tree, coarse in grain, but useful for inferior purposes.

25. The oak which we call *Dutch Wainscot*, from importing it from Holland, grows in the German forests, whence it is floated down the Rhine; it is fine in the grain, generally free from knots, and more easy to work and is less liable to warp than English oak; it is much used for floors and joinery in general; also for a variety of furniture. The *Riga Oak* is esteemed on account of its freeness from knots and from its straightness in the grain. The *Austrian Oak* grows quicker and to a greater height than our oaks; but it is less valuable, because softer in texture, lighter, and less durable: it is also lighter in shade than English oak.

26. The oak is to be found in almost every climate, but thrives best towards the northern parts of Europe, that being the most compact and durable which is grown in a dry and sandy soil and an exposed situation; much moisture causing expansion, and giving bulk without nourishment or firmness of texture: oak so reared also splits more easily than the former, and is more liable to shrink and swell with the changes of the weather.

27. The age at which the oak is considered to reach maturity is 100 years; that period is therefore the best for cutting it down: it certainly ought not to be felled earlier than at 60, nor allowed to exceed 200, although under favourable circumstances the tree may attain the age of 1,000 years. The average quantity of timber that is obtained from trees which have been allowed to reach maturity is a load-and-a-half, or seventy-five cubic feet; but it too often happens that they are cut down before they will produce a load of timber.

The best time for felling is in summer, the timber cut down at that season being the most durable, supposing the common mode of treatment only to be adopted; but as the bark, which is very valuable for tanning, is not easily detached from the trunk when the sap is at rest, the method referred to in Art. 9 is sometimes pursued, by which it is obtained in the readiest manner and best condition, and the timber left for felling when most fitting or convenient, say after the fall of the leaf, a practice which not only improves the sapwood, rendering the timber heavier and stronger, but also makes it less liable to engender worms, and to decay. The sap-wood of oak (of which the proportion is not so great as in fir) is by steeping made less subject to worms, and is otherwise improved. Green oak is said to suffer in seasoning a reduction of from one-third to two-fifths of its weight. The shrinkage in its width has been ascertained to be about one thirty-second part.

28. The annual ring in oak presents a compact and a porous part, the former being the darkest in colour; the pores in the sap-wood are large and numerous, and distinctly apparent; the larger septæ are usually very distinct, but the smaller they are, and the more minute the pores, the greater the strength and durability of the timber; also the less that the brown colour approaches a foxy or red shade, the more superior it is. On cutting oak in an oblique direction, much beauty in flowers and veins is discovered, originating in the septæ and mixed texture of the wood.

MONUMENT TO WILSON, THE ORNITHOLOGIST.—A subscription has been commenced at Paisley for the erection of a monument to the memory of Wilson, the celebrated ornithologist, who was a native of that town, and originally a weaver there.

COLLECTIONS TOWARDS A GLOSSARY OF ARCHITECTURE.—No. VIII.

COLUMN—DORIC.—Of existing remains of the Grecian Doric, the earliest known specimen is the Temple at Corinth, of which the columns, whose shafts are monolithic (or consisting of a single stone), are little more than four diameters in height; in the latest recognized examples of Greek taste, the columns are found to be in height nearly six diameters and a half. Between these two extremes, in the former whereof we see the nearness, both in date and character, to the massiveness of

Egyptian architecture, and in the latter the Roman innovation had already interfered with the purity of Greek taste; between these two we find a proportion which has been always looked upon as the perfection of this order: this proportion is found in buildings which are clearly ascertained to belong to one period, viz., the age of Pericles, wherein the most consummate taste and the highest skill had the direction of the public buildings. The following table exhibits at one view the proportion of the columns in some of the principal buildings in Greece and its colonies, concluding with the scale which the Roman and Italian schools assigned to the Doric:—

Date of Erection.	Name of Building.	Name of Architect.	Height of Column.	Diameter.	Number of Diameters High.	No. of Columns in Portico.	No. of Columns on the side.
About 800 a.c.	Temple at Corinth	—	Pt. in. 23 8	Pt. in. 3 10	4½	6	—
600 or 700 a.c.	Great Hypæthral Temple at Paestum	—	28 10	7 0	4½	6	14
500 a.c.	Temple at Selinus	—	32 6	7 6	4½	6	12
—	Octostyle at Selinus . . .	—	48 7	10 7	4½	8	16
—	Temple of Minerva at Syracuse	Probably Archimedes of Corinth.	28 8	6 6	4½	—	—
About 450 a.c.	Temple of Hercules at Agrigento	—	33 0	7 0	4½	6	14
—	Temple of Concord at ditto	—	22 2	4 8	4½	6	—
500 a.c.	Temple of Jupiter Paestinus at Ægina	Libon.	17 1	3 2	5½	6	—
About 461 a.c.	Temple of Theseus	—	18 7	3 3	5½	6	13
* 448 a.c.	PARTHENON	Ictinus.	34 0	6 2	5½	8	17
About 430 a.c.	Temple of Apollo at Beane	Ictinus.	19 6	3 7	5½	6	15
—	Temple of Minerva at Sentum	Ictinus.	19 7	3 4	5½	6	—
Age of Pericles	Temple of Ceres at Eleusis	Cornebas.†	—	6 6	Supposed 4½	12	—
—	Temple of Diana-Propylæa at Eleusis	—	14 10	2 7	5½	2 in arch.	—
—	Temple at Rhamnus . . .	Alcamenes, a pupil of Phidias.	13 4	2 4	5½	6	12
—	Temple of Apollo, Delos	—	18 8	2 11	6½	—	—
About 338 a.c.	Portico of Philip of Macedon, Delos	—	18 8	2 10	6½	—	—
—	Temple of Jupiter, Naxos	—	33 8	5 2	6½	6	—
100 a.c.	Agora, at Athens	—	26 2	4 4	6½	4	—
Time of Augustus	Theatre of Marcellus, at Rome	—	21 0	3 0	7½	—	—
About 80 A.D.	Coliseum	—	27 3	2 10	9½	—	—
About 300 A.D.	Baths of Dioclesian . . .	—	—	—	8	—	—

Palladio, Vignola, De Lorme, and others of the Italian school, assigned eight diameters (including the base as well as the capital) for the height of the column, whilst Scamozzi gives 8½ diameters. Sir William Chambers, in his plate of a column, which he calls the Doric order "in its improved state," follows the proportions of Palladio and Vignola.

By a reference to the table, it will be seen, that in the examples of the best era, that of the Parthenon, the columns are found to exceed five, and to be less than six, diameters high; difference of situation, or other local circumstances, might affect the proportion in some slight degree, but it will be seen that Ictinus adhered very nearly to one standard.

Lord Aberdeen is inclined to test the antiquity of a building, by comparing the proportion of the capital to the shaft; but Mr. Gault prefers "a judgment from the height (of the column) as compared with the diameter, to any other criterion; although it must be admitted that it is not an infallible one." (Encyc. p. 63.) The same excellent critic observes, that "the origin of the Doric order is a question not easily disposed of. Many provinces of Greece bore the name of Doria; but a name is often the least satisfactory mode of accounting for the birth of the thing which bears it." Colonel Leake, and many other authorities, consider that the Doric order arose, as soon as internal tranquillity followed the return and settlement of the Heraclidæ in Peloponnesus, 825 a.c.; and that it began in those cities which were the earliest seats of art in Greece, viz. Sicyon, Corinth, and Argos. Professor Muller says, that "the order is not improperly termed Doric, inasmuch as it was

brought to perfection in the Doric cities; and that Corinth was the first place "where the front and rear parts of temples were finished with pediments, the tympanum being adorned with statues of terra-cotta."

In the opinion of the same writer, the Doric architecture was created by the Doric character and displays therein "the peculiar bias of the Doric race to strict rule, simple proportion and pure harmony."

Unfortunately many temples, of which we read, have entirely disappeared—as that of Juno; at Argos, said to have been the very first Doric erection, considered as a specimen of the order, and the temple of Jupiter at Olympia, by the architect Libon—still enough has been spared to later times to justify the admiration of posterity; and in the unrivalled Parthenon and the Theseum, we have two examples which have been so accurately measured and delineated, as to leave no cause for regret but the ravages of man—for time seems to have respected such admirable relics of taste. "For all the highest effects, which architecture is capable of producing, a Greek periptera temple of the Doric order is perhaps unrivalled." (Hoeking.)

To correct an optical deception, the Greek made the columns at the angles of building thicker than those in the middle; at the Parthenon this increase is one-forty-fourth—at the temple of Theseus one-twenty-eighth—the Vitruvian precept is that it should be one-fiftieth part of the diameter.

It may be taken as an invariable rule that the Greeks always fluted their columns, and it is remarkable that the axiom that "the exception proves the rule" has peculiar force in this respect. For, either from motives of economy, or other unexplained cause, some examples are found in which the columns are fluted only a few inches at top and bottom, the rest of the shaft being left plain, doubtless to be also

* Lord Aberdeen and other writers are inclined to place the date of the Parthenon a few years later than the above, the year in which Pericles obtained undivided power by the death of Cimon.

† According to Piazzi; but Vitruvius states that Ictinus designed it.

‡ Has no base.